

Q2
G
cond.

a vacuum chamber;
an ion introducing apparatus connected with said vacuum chamber for doping a semiconductor layer formed on a substrate with a dopant impurity;
a laser processing apparatus connected to said ion introducing apparatus through said vacuum chamber for treating said semiconductor layer with a laser light after said doping; and
a mechanism provided to said vacuum chamber for transporting said substrate from said ion introducing apparatus to said laser processing apparatus without exposing said substrate to the air.--

REMARKS

The Examiner's Official Action dated January 5, 1998 was received and its contents carefully noted. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Filed concurrently herewith is a *Request for a Two Month Extension of Time* which extends the shortened statutory period of response to June 5, 1998. Accordingly, Applicants respectfully submit that this response is being timely filed.

Claims 56, 57 and 59-61 are rejected under 35 U.S.C. §112 for being indefinite. Specifically, these claims include a relative term "substantially square" which the Examiner contends is not defined by the claims.

The specification very clearly sets forth the dimensions of the substrate on page 4, last line. These dimensions are also expressly provided for in claim 58, as 300mm x 400mm. As is readily apparent from these

dimensions, the substrate is not "square" in the common definition of the term. It is, however, "substantially" square and much more square than it is rectangular. By defining the substrate as "square" in claim 56, claim 58 and the description in the specification of the dimensions would not make sense.

Further, defining the substrate as "rectangular" would confuse the distinction between the "substantially" square substrate and the rectangular-shaped laser beam. This aspect of the invention is important, not only in conjunction with the laser beam, but also with respect to the multi-chamber system of the present invention. It is important that Applicants have the ability to define the substrate as "substantially" square and the laser as rectangular to clearly define the invention as a thin laser beam that scans the surface of a substrate having a larger area, but that the rectangular laser is longer in length to cover the substrate and provide complete irradiation of the surface of the film on the substrate. It would be unfair to allow Applicants to have claims only directed to the exact dimensions provided in claim 58. The Examiner believed such support in the specification was sufficient during an interview with Applicants and the undersigned on May 16, 1996.

In addition, "substantially" square is really more definite than rectangular since the specification clearly demonstrates that the substrate is almost square. The relative nature of the term in this case should be considered sufficient since the exact dimensions of the substrate are not what is critical to the invention. Surely one of skill in the art could understand that the recitation of "substantially" square means almost square. Moreover, claim 56 provides further limiting dimensional features of the

invention to recite that the substrate width is less than the rectangular laser beams length. As a result, the recitation of "substantially" square in claim 56 should be considered definite under 35 U.S.C. §112. (Claim 56 is amended to correct an obvious clerical error in view of claim 58.)

Claims 16-20, 24 and 25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Begin et al. in view of Miyachi et al., Nakayama et al., and Kawasaki et al., further in view of Codama et al., further in view of Pressley. This rejection is traversed for the reasons advanced below.

The Examiner relies upon Begin et al. for showing an apparatus having multiple chambers. Although the reference to Begin et al. appears to disclose an apparatus having an ion introducing apparatus and a laser processing apparatus, the Examiner is contending that such apparatuses are well known so that the claimed invention is obvious. However, none of the cited references discloses an ion introducing apparatus in a multi-chamber system. The Examiner merely argues that the laser irradiation and the ion doping are disclosed by Codama et al. and it would have been obvious to modify the apparatus of Begin et al. to perform these steps.

Apparently, the Examiner is saying that it is "obvious to try" the invention because the Examiner does not show a proper motivation for the combination. Routine experimentation is not sufficient for providing the required motivation for an obviousness rejection. Nothing in the prior art cited by the Examiner would even suggest the utilization of an ion introducing apparatus in a multi-chamber system. "Obviousness does not require absolute predictability but a reasonable expectation of success is necessary. In re Clinton, 188 U.S.P.Q. 365, 367 (C.C.P.A. 1976)(emphasis added). Both the suggestion of the invention and the expectation of success

must be found in the prior art, not in Applicants' disclosure. Selective hindsight is not appropriate to design experiments in order to reach the claimed invention. In re Dow Chemical, 5 U.S.P.Q.2d 1529, 1531-32 (Fed. Cir. 1988). As a result, the Examiner has failed to provide sufficient motivation from the references to establish a prima facie showing of obviousness without referring to Applicants' disclosure.

Applicants contend that the patentability of the present invention resides in the combination of a laser processing apparatus and an ion doping apparatus in a multi-chamber system. Since the remaining references cited by the Examiner do not address this feature, the currently pending claims should be considered patentably distinguishable over the cited art of record.

New claim 74 is added to provide a generic claim to the first, second, third and fourth sub-species of the second species. Upon allowance of claim 74, the non-elected claims directed to the first, third and fourth sub-species should also be considered allowable.

In view of the foregoing, it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 16-20, 24, 25 and 56-61, that new claim 74 be allowed and that the application be passed to issue. If a conference would expedite prosecution of the instant application, the Examiner is hereby invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jeffrey L. Costellia', written over a horizontal line.

Jeffrey L. Costellia
Registration No. 35,483

Sixbey, Friedman, Leedom & Ferguson, P.C.
2010 Corporate Ridge, Suite 600
McLean, Virginia 22102
(703) 790-9110
(703) 883-0370 (Fax)